

# Risk Factor Analysis for Placenta Retention in Maternal Delivery at the Tenriawaru Regional Hospital in Bone Regency

Andi Misnawati<sup>1</sup>, Rosdiana<sup>1</sup>

<sup>1</sup>Lecturer, Public Health, Universitas Mega Buana, Palopo, Indonesia

## Abstract

Placenta retention issues have complications that can endanger mothers after delivery because of their strong association with bleeding. This research aims to determine the risk factors for placental retention in maternal. This research was an observational analytic study with a case-control design with a sample size of 68 mothers. The research was conducted at the Tenriawaru Hospital in 2020. Data collection was carried out by interview using a questionnaire. Then it was analyzed using the chi-square test. The results of the research for the Age variable (p-value = 0.027) show that there is a relationship between age and the incidence of placental retention, with the OR value: 3.4 (CL: 1.26–9.41) and for the parity variable (p-value = 0.44) there was no relationship between parity and the incidence of placental retention, with the OR value: 0.47 (CL: 0.12–1.82). It can be concluded that of the two factors the incidence of placental retention including age and parity, only age is associated with the incidence of retained placenta.

**Keywords:** *Placenta Retention, Age, Parity*

## Introduction

The issue of maternal and child health remains a problem that has not been resolved. World Health Organization data states that every day an estimated 800 women die as a result of preventable causes related to pregnancy and childbirth<sup>1</sup>

The Millennium Development Goals (MDGs) target are to improve maternal health and reduce up to  $\frac{3}{4}$  of the risk of death to reach 102/100,000 live births by 2015<sup>2</sup>. One indicator of the impact is to reduce the maternal mortality rate (MMR) from 262 per 100,000 live births in 2005 to 74 per 100,000 live births in 2025<sup>3</sup>. The importance of efforts to reduce the incidence of retention of the placenta by providing counseling about the age at high risk of experiencing complications during pregnancy and advising pregnant women of high-risk age to make antenatal care visits at least four times to identify abnormalities early during pregnancy<sup>4</sup>

Maternal age is one of the factors that influence the mother's health status during pregnancy. Pregnant women with a relatively young age or on the contrary too old tend to be younger to experience health complications compared to mothers with a healthy reproductive period

of 20–35 years<sup>5</sup>

Causes of maternal death in Indonesia include bleeding, infection, abortion, prolonged labor, and indirect causes of death such as cancer, heart disease, tuberculosis, or other illnesses suffered by the mother where bleeding became the second-highest cause after the indirect cause of death, namely 30.3%<sup>6</sup>. WHO mentions that one of the causes of bleeding after childbirth is placental adhesions or retained placenta<sup>7</sup>

The causes of maternal death were bleeding 28%, eclampsia 25%, infection 11%, complications of abortion 5%<sup>8</sup>. The high MMR is also caused by three incidents of being late, namely being late in knowing, being late in referring and being late in making a decision and four incidents of being too young, too old, too many children, too close the distance between births is still high<sup>9</sup>. One of the causes of bleeding is placental retention with a frequency (16–17%) and other causes of uterine atony with a frequency (50–60%), birth canal laceration (4–5%), blood disorders with a frequency (0.5–0.8%)<sup>10</sup>.

Other predisposing factors that influence the occurrence of placental adhesions are age, parity, the uterus is too large, short gestational distances,

and socioeconomic conditions. Other literature adds education, history of labor complications, and anemia status as factors that are associated with the incidence of placental retention. This research aims to determine the risk factors for placental retention in mothers who give birth at the Tenriawaru General Hospital.

### Material and Methods

This research was conducted at the Tenriawaru Regional General Hospital, Bone Regency, South Sulawesi Province in July–September 2020. Tenriawaru Hospital is a hospital with a high incidence of placental

retention due to receiving referrals from all Community Health Centers in the various bone regency.

This type of research is analytic observational with a case-control design. The population in this research were all mothers who gave birth at the Tenriawaru Hospital. The sample selection of all mothers giving birth at the Regional General Hospital Tenriawaru, then the sample was selected using a simple random sampling technique. The independent and dependent variables were analyzed by bivariate. The hypothesis test used is the chi-square test. The amount of the risk factor is calculated using the odds ratio (OR).

### Findings

**Table 1 Distribution according to the characteristics of respondents in the Tenriawaru Regional Hospital, Bone Regency**

Characteristic	n	%
Retention of Placenta		
Yes	35	51.5
No	33	48.5
Education		
Graduated from elementary school	12	17.6
Graduated from junior high school	10	14.7
Graduated from high school	32	47.1
Graduated from college	14	20.6
Occupation		
Entrepreneur	2	2.9
Civil Servant	7	10.3
Housewife	54	79.4
Private	5	7.4
Age		
Risky (<18 – >35 years)	31	45.6
Not risky (18–35 years)	37	54.4
Parity		
Multiparous	11	16.2
Primiparous	57	83.8
Total	68	100.0

Table 1 shows the characteristics of the respondents studied. All respondents in this research were mothers with placental retention, which amounted to 35 or 51.5% of respondents, and mothers who gave birth without placental retention were 33 or 48.5% of respondents. Thus, the number of respondents in this research were 68 mothers giving birth.

Based on the characteristics of the level of education, most of the respondents had graduated from high school, namely, 47.1%, based on the characteristics of the job, namely 79.4% were housewives, it can be seen that the average age of respondents 18 years to 35 years (not at risk) is 54.4%, while based on parity characteristics most of the primiparous respondents are 83.8%.

**Table 2, The Relationship Between Age And Placental Retention Of Respondents At The Tenriawaru Regional Hospital, Bone Regency 2020**

Respondent Age	Placenta Retention						
	Yes		No		Total		Statistic Test
	n	%	n	%	N	%	
Risky	21	67.7	10	32.3	31	100	p = 0,027
Not risky	14	37.8	23	62.2	37	100	OR : 3.4
Total	35	51.5	33	48.5	68	100	CL : (1.26–9.41)

Table 2 shows that of the 31 respondents' at-risk age, 67.7% had placental retention and of the 37 respondents with no risk age, 37.8% had placental retention. Based on the test results obtained p-value < 0.027. This means that there is a relationship between age and the incidence of placental retention. Placental retention tends to be experienced by age at risk, namely <18 years– >35 years.

The results of the calculation of the odds ratio show that respondents with the risky age category have a 3.4 times greater chance of experiencing placental retention than respondents with no risk age category.

**Table 3, The Relationship Between Parity And Placental Retention In The Tenriawaru Regional Hospital, Bone Regency 2020**

Parity	Retention of Placenta						
	Yes		No		Total		Statistic Test
	n	%	n	%	N	%	
Multiparous	4	36.4	7	63.6	11	100	p = 0.44
Primiparous	31	54.4	26	45.6	57	100	OR : 0.47
Total	35	51.5	33	48.5	68	100	CL : (0.12–1.82)

Table 3 shows that of the 11 respondents with multiparous parity, 36.4% experienced placental retention and of the 57 respondents with primiparous parity, 54.4% of respondents had placental retention. Based on the test results obtained  $p\text{-value} < 0.44$ . This means that there is no relationship between parity and the incidence of placental retention.

## Discussion

The results show that there is a relationship between age and retained placenta. Placental retention tends to be experienced by age at risk, namely  $<18\text{ years} \rightarrow 35\text{ years}$ . The results of the calculation of the odds ratio show that respondents with the risky age category have a 3.4 times greater chance of experiencing placental retention than respondents with no risk age category.

The results of this research are in line with Aminah which states that statistically there is a significant relationship between maternal age and the incidence of placental retention with an  $OR=3.8$  value, which means that women aged 35 years have a nearly four times greater risk of experiencing retained placenta when compared to mothers aged 20–35 years<sup>11</sup>. This research is also in line with research conducted by Hardiana, the majority of respondents with no risk age are 61 people (76.2%)<sup>12</sup>. The majority of respondents did not experience placental retention, 64 individuals (80%). There is a relationship between maternal age and the incidence of placental retention ( $P\text{-value} = 0.001$ ).

This can occur because at the age of under 20 years a woman's reproductive function has not developed completely. Meanwhile, in women over 35 years of age their reproductive function has decreased or deteriorated, so that in labor complications such as postpartum hemorrhage caused by retention of the placenta can occur. Therefore, consideration of age in pregnancy or childbirth is one of the things that must be considered.

The results of this research indicate that there is no relationship between parity and the incidence of placental retention with a  $p\text{-value} < 0.44$ . Parity is not a factor in the incidence of placental retention, it can also be related to the health status of pregnant women. However, theoretically, the incidence of placental retention is related to maternal parity in which the occurrence of deterioration and defects in the endometrium resulting

in fibrosis in the placental implantation mark in previous labor, so that vascularity is reduced.

This research is in line with research conducted by Permatasari et al, obtained the results of the bivariate test between the parity variable and the incidence of placental retention obtained a  $P\text{-value}$  of 0.356 which means that statistically there is no relationship between parity and placental retention<sup>13</sup>. This research is also in line with the research of Mariana obtained by the results of the chi-square statistical test obtained a  $p\text{-value}$  of 0.102 ( $p>0.05$ ) thus it can be concluded that there is no relationship between parity and the incidence of placental retention at the Raden Mattaher Regional General Hospital, Jambi Province. Besides,  $OR = 2.143$ , this indicates that respondents who have parity are at risk of experiencing a 2–3 times risk of experiencing placental retention when compared to parity who are not at risk<sup>14</sup>.

The incidence of placental adhesions or retained placenta is one of the biggest contributors to the occurrence of postpartum hemorrhage in childbirth mothers. Therefore, it requires handling from various parties to overcome this. It is important for pregnant women to carry out regular antenatal care, to increase the nutritional intake needed during pregnancy.

## Conclusion

This research shows that of the two factors, only age is associated with the incidence of placental retention in the incidence of placental retention including age and parity.

**Conflict of Interest:** None

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**Ethical Clearance:** Health Research Ethics Committee, Faculty of Public Health, Universitas Hasanuddin

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